

Bibliometrics and Impact Analyses at NIST

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*Bibliometrics and Research Assessment:
A Workshop for Librarians and Information Professionals*
Library of Congress
May 21, 2015

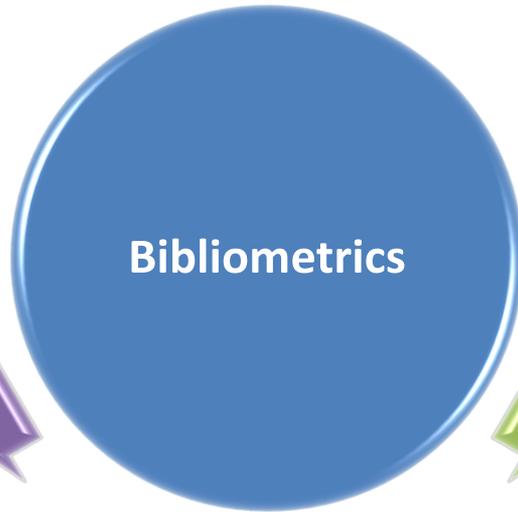
National Institute of Standards and Technology



- Non-regulatory Federal agency made up of about 3,000 science and technology researchers
 - NIST promotes U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology
 - The Information Services Office supports and enhances research activities of the NIST scientific community through a comprehensive program of knowledge management
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Institution-Level



Library-Level



Lab-Level

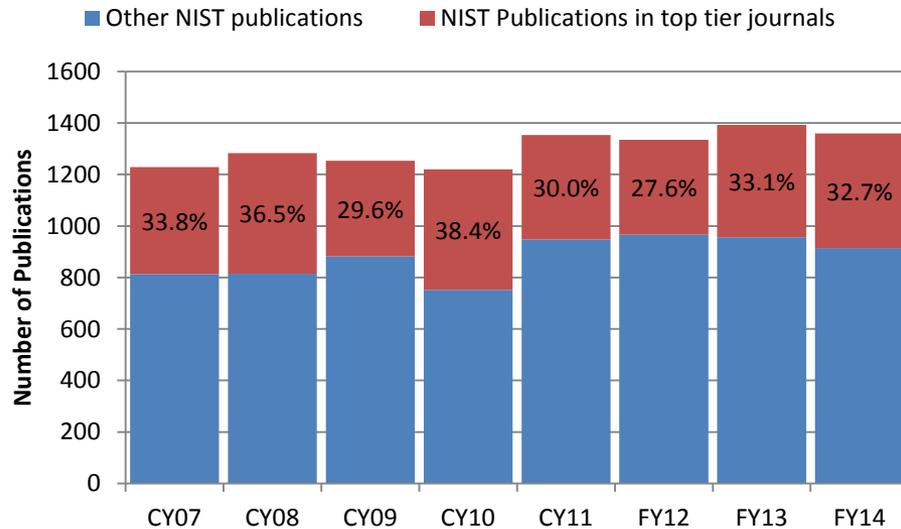


Institution-Level



- NIST papers in “top tier” journals
 - External and internal NIST collaborations
 - Citations to NIST-published journal, *Journal of Research of the National Institute of Standards and Technology*
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NIST Publications in Top Tier Journals



Percentage of NIST Publications in Top Tier journals, 2007-2014

- NIST authored papers in “top tier” journals
- Challenge: What is a “top tier” journal?
- Used by NIST Management to assess the extent of NIST’s impact

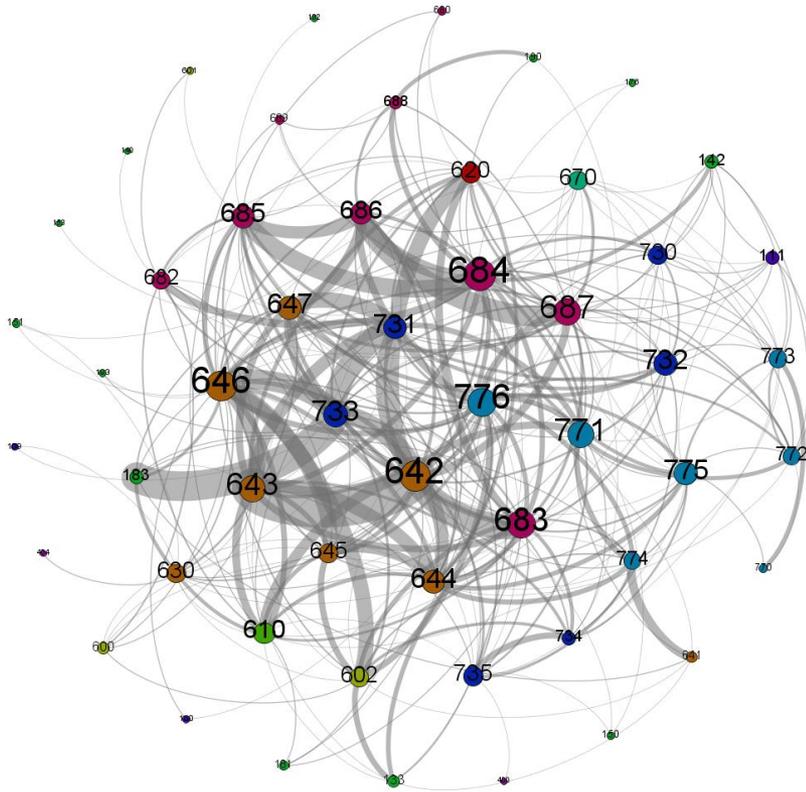
External Collaborations



**Countries of Authors/Institutions
Collaborating on NIST Publications,
2008-2012**

- Determine number of non-NIST co-authors and unique institutions collaborating with NIST
- Used by NIST Management to assess the extent of NIST's impact

Internal Collaborations



**Collaborations between NIST Divisions
2012-2014**

- Determine collaborations within and between Labs
- Includes all publication types:
 - papers
 - presentations
 - posters
- Will inform Lab and NIST Management of silos and successful collaborations

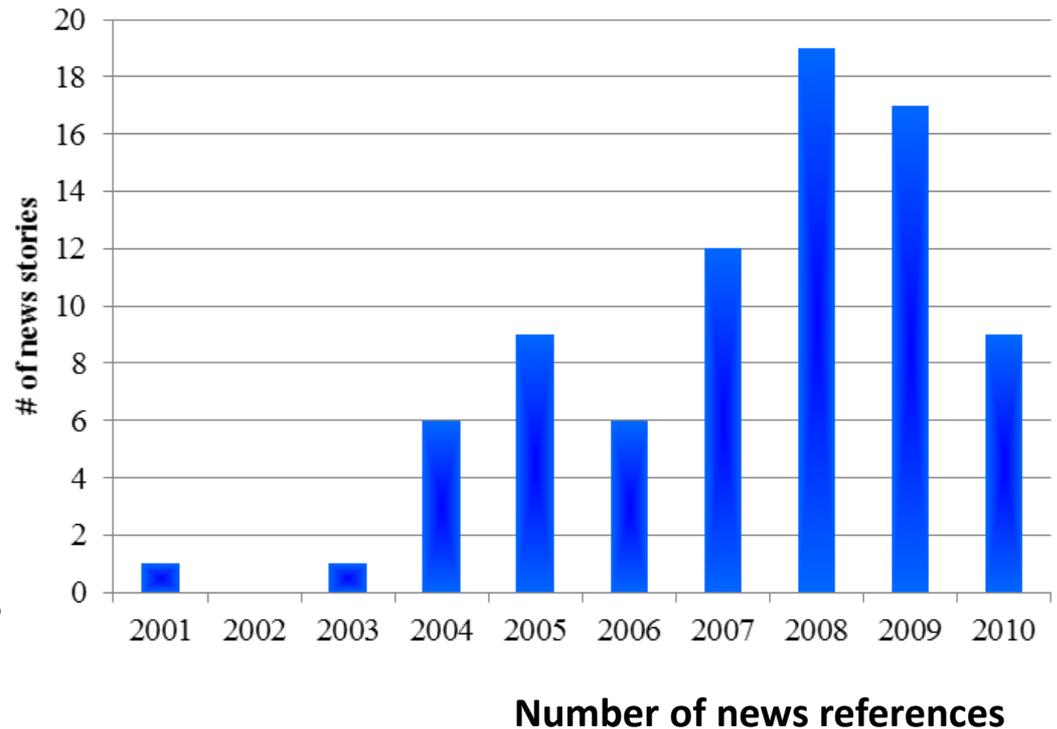
Lab-Level



- Individual h-indexes for promotion packages
 - Impact of a report on its intended audience
 - Division/group h-index, citation counts, and more
 - Research area publication networks
 - Journal and conference venue recommendations
 - Individual publications
 - Proactively for group, program, or division
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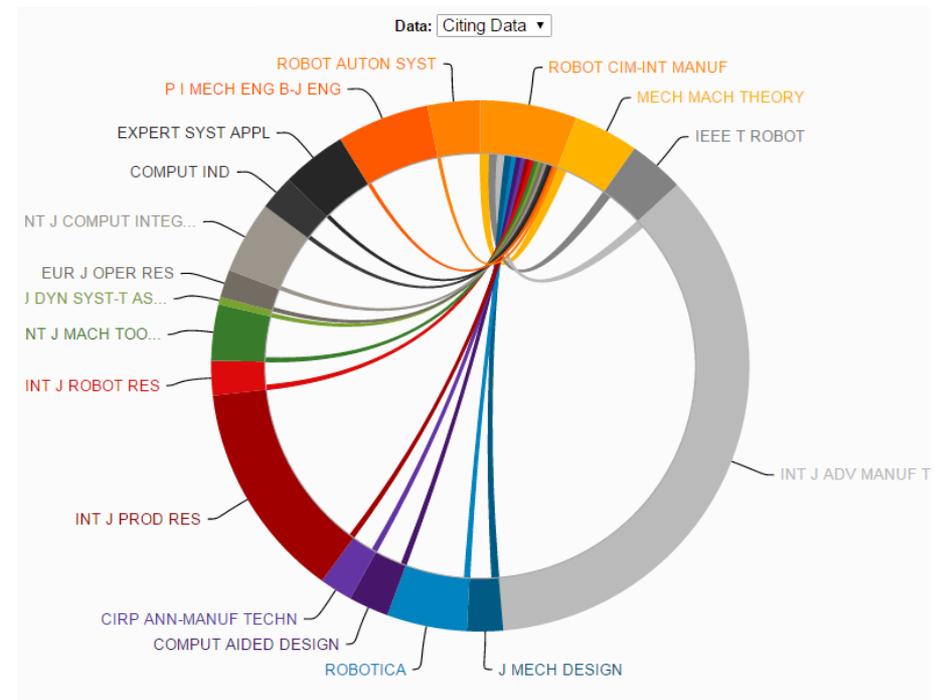
Quantify Impact of a Report

- Analysis of:
 - scholarly publications and gray literature
 - full-text download
 - news, trade literature, and blog
- Impact of publication to different audiences



Venue Analysis

- Recommend venues to publish in
 - Number of related articles
 - IF/SJR subject category ranking
 - Eigenfactor
- Journal, conference, trade publications

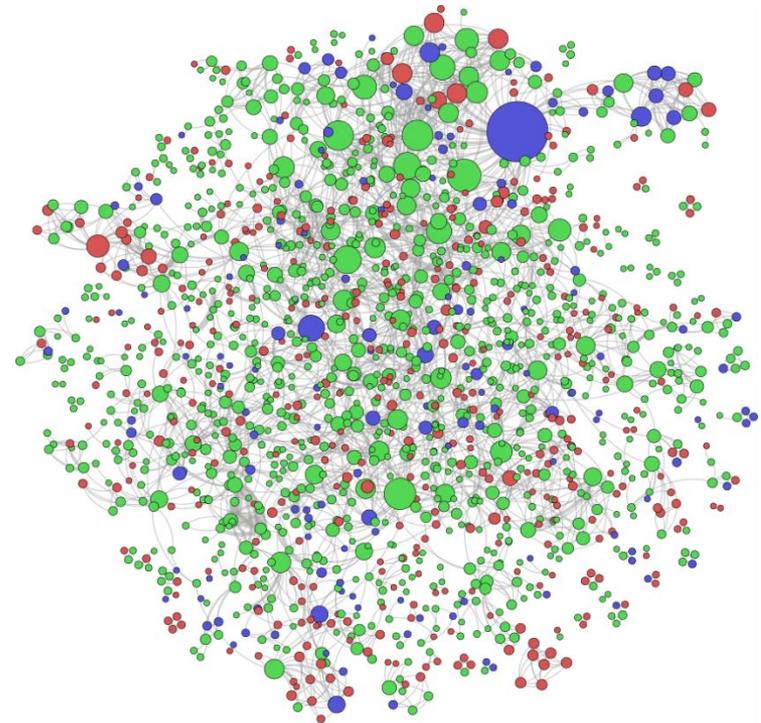


**Journals Citing
Robotics and Computer-Integrated Manufacturing**

Source: Journal Citation Reports, 2015

Research Area Analysis

- Customers understand their research area
 - Authors
 - Research subjects
 - Institutions
 - Geographic
 - Trends over time
- How research fits into the field
- Research opportunities



Institution Type	
Green square	Academic
Blue square	Government
Red square	Private Sector

Collaborations	Degree
Thin line	2
Medium line	12
Thick line	61

Source: Web of Science

Institution network for manufacturing robotics

Library-Level



- Impact of journal collection
- Evidence-based collection development
- Archive journal holdings assessment



Evidence-Based Collection Development



- NIST publication venues and citations
 - Combined with traditional collection development statistics
 - Categorized and prioritized journals for the collection and for alternative access
 - More robust method than cost-per-use or downloads
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How We Conduct Analyses:

Best Practices

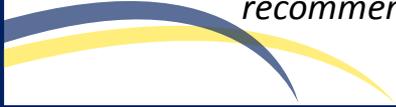
- Use established internal review process through different stages of analysis
- Collaborate with Lab Liaison team members with the right expertise – program analyst, metadata librarians, etc.
- Use formalized report structure and template
- Share with Lab Liaison team
 - Lab Liaisons meet regularly to share experiences
 - Final reports posted to shared drive

Analysis Tools



- Web of Science
- Journal Citation Reports (JCR)
- InCites
- Google Scholar
- MS Excel and Access
- OpenRefine

Note: The identification of any commercial product or trade name does not imply endorsement or recommendation by the National Institute of Standards and Technology.

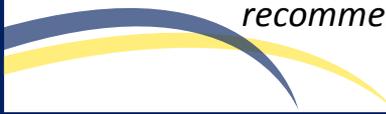


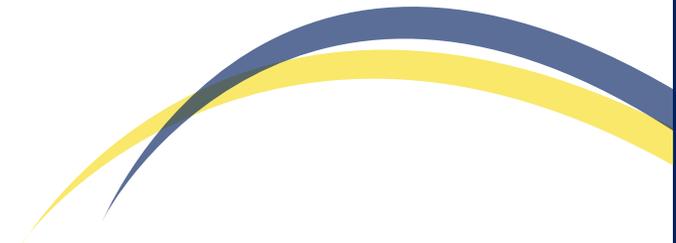
Data Visualization Tools



- MS Excel
- Tableau
- Sci²
- Gephi
- Wordle

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Questions?

More bibliometric presentations available at:

<http://www.nist.gov/nvl>

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